Remarks

Entrance of this amendment, and allowance of all remaining claims are respectfully requested. Upon entrance of this amendment, claims 1 & 3-10 will remain pending.

By this paper, independent claim 1 is amended to more particularly point out and distinctly claim certain novel aspects of the present invention. Specifically, claim 1 is amended to specify that the copying of the update control code from the currently executing, first software module of the system is to memory space outside a memory location *at which the first software module is currently executing*. Further, independent claim 1 is amended to specify that the replacing of the first software module with the second software module includes storing the second software module in memory *at a location which partially overlies the memory location at which the first software module was executing*, and the replacing includes employing the updated control code copied from the first software module during the replacing of the first software module with the second software module. This latter subject matter was originally the subject of canceled claim 2. Support for amended claim 1 can be found throughout the application as filed. For example, reference FIGS. 3-5, and the discussion thereof beginning at paragraph [0026].

In addition, by this amendment, the prior pending system and program storage device claims 11-31 are canceled from further consideration in this application. Applicant is not conceding that the subject matter encompassed by claims 11-31 is not patentable, but rather, these claims are canceled to facilitate expeditious prosecution of the remaining method claims. Applicant respectfully reserves the right to pursue additional claims, including the subject matter encompassed by claims 11-31, as presented prior to this amendment, in one or more continuing applications.

In the final Office Action, claims 1-5, 8-15, 18-26 & 29-31 were rejected under 35 U.S.C. §102(e) as being anticipated by Goodman et al. (U.S. Patent No. 7,089,547; hereinafter Goodman), and claims 6, 7, 16, 17, 27 & 28 were rejected under 35 U.S.C. §103(a) as being unpatentable over Goodman in view of Farkus et al. (U.S. Patent No. 7,099,967; hereinafter Farkus). These rejections are respectfully traversed to any extent deemed applicable to the claims presented herewith, and reconsideration thereof is requested for the reasons set forth below.

Numerous aspects of Applicant's recited independent claim 1 patentably distinguish over the applied art. For example, Applicant recites copying, by a currently executing, first software module of a system, update control code *from the currently executing, first software module to memory space outside a memory location at which the first software module is currently executing*. This copying process is illustrated in Applicant's FIG. 3. To the extent relevant, Goodman describes at column 4, lines 33-54, provision of non-volatile memory having a plurality of separately erasable sectors or memory areas for storing at least two separate copies of operational code, and a boot program stored separately from the operational code. This teaching does not anticipate the above-noted process recited in Applicant's amended claim 1.

For example, Applicant recites copying, by a currently executing, first software module of a system, update control code *from the currently executing, first software module*. There is no copying of update control code in Goodman from a currently executing, first software module *per se*. Rather, the express teaching of Goodman is that the boot program exists separately from operational code in the non-volatile memory. Thus, in Goodman, both operational code and boot code would need to be separately updated. In comparison, Applicant recites that the update control code is copied from the currently executing, first software module that is being replaced by the second software module. This means that, in accordance with Applicant's invention, the first software module and its update control code are simultaneously being replaced by the second software module. No similar teaching is provided in Goodman.

In addition, Applicant's independent claim 1 recites that the update control code is copied *from the currently executing, first software module* to memory space *outside a memory location at which the first software module is currently executing*. This again is illustrated in Applicant's FIG. 3, wherein firmware update control code is relocated to an area of memory beyond where the new module is to be placed. Applicant respectfully submits that a careful reading of Goodman, as well as the other art of record, fails to uncover any teaching or suggestion of this aspect of Applicant's protocol. In particular, a careful reading of Goodman fails to uncover any discussion that a currently executing, first software module being replaced by a second software module writes update control code *from the first software module* to memory space outside a memory location *at which the first software module is currently executing*. No such process is provided in the applied and cited art. For at least this additional reason, Applicant respectfully submits that the presented claims patentably distinguish over the art.

Still further, Applicant respectfully submits that it is not inherent in updating a currently executing software program that update control code such as recited by Applicant is necessarily copied from such a program. The boot code in Goodman would more likely be handling the copying of the replacement image, and thus, it would not be necessary to copy code from a currently executing first software module in Goodman, as recited in Applicant's invention.

Applicant's amended independent claim 1 further recites replacing the currently executing, first software module with the second software module by storing the second software module in memory space at a location that at least partially overlies the memory location at which the first software module is executing. This is illustrated in Applicant's FIG. 4. As amended, Applicant's independent claim 1 further states that the replacing includes employing the update control code copied from the first software module to memory space outside the first software module from which the first software module was executing, and that the replacing includes executing the update control code copied from the first software module during the replacing of the first software module with the second software module. As noted above, there is no currently executing, first software module in Goodman copying update control code from itself to memory space outside a memory location at which that first software module is currently executing. Still further, there is no discussion in Goodman of using such copied update control code during the replacing of the first software module with the second software module, let alone that the using includes *executing* the update control code copied from the first software module. No similar process is taught or suggested by Goodman.

In Goodman, the boot code is expressly taught to be stored separately from the operational code to be updated. There is no copying in Goodman of this boot code, or any other update control code from a currently executing, first software module to be replaced.

In addition, Applicant's independent claim 1 recites beginning execution of the second software module without resetting the system. This is illustrated in Applicant's FIG. 5. In contrast, column 7, lines 34-55 of Goodman describe the processing of FIG. 4 thereof for updating firmware of the system. The cited lines of Goodman actually teach away from Applicant's recited invention. Column 7, lines 53-56 state:

> The firmware update process ends at step 437 where the embedded system may be reset to begin execution of the new update code image. (Emphasis added.)

This is clearly contrary to Applicant's recited independent claim, wherein execution of the second software module occurs without resetting the system. Since Goodman expressly teaches resetting the system prior to beginning execution of the new update code image, there is no teaching therein of Applicant's recited invention. For this additional reason, Applicant respectfully submits that independent claim 1 patentably distinguishes over Goodman.

For at least the above-noted reasons, independent claim 1 presented herewith is believed patentable over the applied art. Reconsideration and withdrawal of the rejection thereto are therefore respectfully requested. The pending dependent claims are believed allowable for the same reasons as independent claim 1, as well as for their own additional characterizations.

Dependent claim 5 recites that the update control code further includes control code for branching to an entry point of the second software module upon completion of the replacing to facilitate the beginning execution of the second software module (again, without resetting the system as recited claim 1). The Office Action does not appear to address the substance of this claim. Further, a careful reading of Goodman fails to uncover any discussion of update control code being copied from a currently executing, first software module of the system to memory space outside the first software module, or the subsequent execution of that update control code to facilitate replacement of the first software module with the second software module, or the branching from the update control code to an entry point of the second software module upon completion of the replacing to begin execution of the second software module *without resetting the system*. Thus, Applicant respectfully submits that this claim patentably distinguishes over the applied art.

Dependent claim 10 further recites that the replacing includes employing a hardware based direct memory access (DMA) operation to save the second software module to a target memory space *and wherein the copying update control code includes copying the update control code to memory space outside the target memory space, and wherein the update control code includes control code for determining when the DMA operation is completed and for branching to an entry point of the second software module upon completion of the DMA operation.* The

Goodman summary does not address the above-italicized functionality of Applicant's dependent claim 10. The functions recited in Goodman for which the DMA is employed are distinct from the protocol recited in the dependent claim at issue. As noted above, Goodman teaches resetting the system after replacing a first image with a second image before beginning execution of the new image. This is clearly distinct from Applicant's recited protocol wherein the update control code includes an operation for branching to an entry point of the second software module upon completion of the recited DMA operation. Thus, claim 10 is believed patentable over the applied art.

Farkus is cited in the Office Action in connection with subject matter recited in Applicant's dependent claims 6, 7, 16, 17, 27 & 28. Without acquiescing to the characterizations of Farkus stated in the Office Action, Applicant respectfully submits that a careful reading thereof fails to uncover any teaching or suggestion of the above-noted deficiencies of Goodman when applied against the independent claims presented.

All claims are believed to be in condition for allowance, and such action is respectfully requested.

Should any issue remain unresolved, however, Applicant's undersigned representative requests a telephone interview with the Examiner to further discuss the pending claims in the hope of advancing prosecution of the subject application.

Respectfully submitted,

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